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ART. 15. SCOLECODONTS FROM THE DUNDEE,
DEVONIAN OF MICHIGAN

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A small collection of scolecodonts, fossil polychaete annelid jaws, is described from the Dundee limestone at Dundee, Michigan and from the Sibley Quarry, Trenton, Michigan. The Dundee limestone is recorded as being the same age as the Marcellus of New York and equivalent to the Delaware limestone of Ohio.

Most of the jaws were very poorly preserved. This is very unusual. When jaws are dissolved out of limestone in a five per cent solution of hydrochloric acid they are nearly always in a very fine state of preservation. Many of the jaws look as though they had been partly eaten away by the acid. Only a small amount of matrix was available at the quarry at Dundee, the type locality of the Dundee limestone. As samples were being taken a dump truck arrived and covered the last exposure of the outcrop. Specimens were not too plentiful at either locality. If additional material was dissolved it is certain that many more forms could be found.

Originally these specimens were collected to make comparisons with a large suite of scolecodonts secured from cuttings from a deep well in the Kawkawlin Field, Michigan, between 2860½ feet and 2937½ feet below the surface. The samples from the well were recorded as Dundee limestone in the log. Studies have shown, Eller (1961), that only one species, *Lumbriconerutes cooperi*, a long-range form, is common to the Dundee limestone and the well samples.

Genus EUNICITES, Ehlers, 1868

Eunicites effusus sp. nov.

Maxilla IV. Plate 1, Fig. 1

In outline, the jaw is subtriangular measuring 0.55 mm. in length and 0.90 in width. The jaw consists of a large, heavy base and a small, narrow denticle that tapers gradually to a sharp point. An irregular, rectangular-shaped fossa occupies most of the upper side of the jaw. The margins of the fossa are thin and usually broken. The under surface has a concave area located centrally.

Eunicites effusus is dissimilar to most forms. The smallness and central location of the tooth together with the concave area make it different from other species.

Eunicites extentus sp. nov.

Maxilla IV. Plate 1, Fig. 2-4

The jaw consists of a single, large angular denticle that tapers to a sharp point. The tooth is slightly hooked. The figured specimens measure from 0.17 mm. to 0.42 mm. in length, and from 0.35 mm. to 0.72 mm. in width. The upper side of the jaw is occupied by a large, wide, rectangular or irregularly rectangular fossa. Adjacent to the fossa on some specimens is a wide base or shank. The under side of the jaw is convex while the upper side is concave especially at the outer end.

Except for some general features, this species is unlike other forms because of the wide base or shank and the angularity of the fossa.

Eunicites euconus sp. nov.
Maxilla IV. Plate 1, Fig. 5

The jaw is a single denticle measuring 0.30 mm. in length and 0.40 mm. in width. The hooked denticle is slightly flattened and tapers to a sharp pointed end. Perpendicular and surrounding the base of the denticle is an irregularly shaped flange that is thin and broken. A deep, round fossa is situated at about the center of the base or flange.

A number of forms resemble *Eunicites euconus* in a general way but the base or flange completely surrounding the fossa and perpendicular to the denticle makes it different specifically.

Eunicites ? sp.
Maxilla IV. Plate 1, Fig. 6

This jaw is not complete enough for description due to poor preservation and crushing. A considerable part of the jaw must be missing since there is no evidence of a fossa. Along one margin there is a suggestion of denticles similar to *Eunicites* ? *alienus* Eller (1955) but this may be only an unevenness of the edge.

Genus PALEOENONITES Eller, 1942

Paleoenonites exsertus sp. nov.
Maxilla II. Plate 1, Fig. 7-8

The jaw is large, subtriangular in shape, wide anteriorly and tapers gradually to a blunt posterior extremity. The figured specimen measures 1.12 mm. in length. Due to the broken margins the width of the jaw can not be taken. Along the curved or nearly right angled inner margin a series of eight large, blunt, conical denticles extends the full length of the jaw. The first denticle is usually slightly longer but not as wide as most of the denticles. The four anterior denticles are close together while the posterior ones are widely spaced. From the fourth denticle they decrease in size posteriorly. The outer margin on the upper side is thick, irregular, and usually broken. It forms a shank with the anterior margin. A triangularly shaped fossa, wide anteriorly but very narrow posteriorly occupies the upper side of the jaw. From the anterior part of the fossa a narrow ridge is projected posteriorly to form one of the outer margins. Due to the angle formed by the outer margin at the anterior end a deep concave area is present on the under side of the jaw.

Paleoenonites exsertus is not particularly similar to other forms. The angularity of the inner margin, the shape of the fossa, and the size and arrangement of the denticles are different.

Paleoenonites editus sp. nov.
Maxilla II. Plate 1, Fig. 9

In the outline the jaw is subtriangular. The figured specimen is large and measures 0.77 mm. in length. Along the slightly curved inner margin a series of eight or nine sharp pointed to blunt denticles extends the full length of the jaw. The first denticle is long, narrow and sharp pointed. The second is smaller and flattened while the third is larger and also flattened. The remaining denticles are large and rounded and decrease in size gradually to the posterior end. The anterior margin is straight, elevated and thickened. The outer margin on the upper side is irregular and usually broken. It forms a large shank with the anterior margin. A long, narrow triangular-shaped fossa

occupies the upper side of the jaw. One of the lateral margins of the fossa is thickened, elevated and rounded. The upper side of the jaw is convex while the under side is concave.

There is a slight resemblance between *Paleoenonites editus* and *Paleoenonites clinatus* Eller (1945.) They have similar straight and thickened anterior margins. They differ in the curvature of the inner margin and the arrangement and character of the denticles.

Genus STAUROCEPHALITES Hinde, 1879

Staurocephalites eucharis sp. nov.

Maxilla II. Plate 1, Fig. 10

The jaw is elongate, slightly arched and the figured specimen measures 0.80 mm. in length. A series of twelve large, graceful, sharp-pointed, conical, backward-directed denticles extends nearly to the posterior end. The first denticle is larger than the second. Beginning with the third denticle they increase in size to about the mid-point and then decrease in size gradually to the posterior. The anterior end is straight and slightly oblique while the posterior end is rounded. The inner margins are thin and broken. A narrow fossa extends nearly to the posterior end.

Staurocephalites eucharis is similar to *Staurocephalites mccallae* Eller (1945) except for the arrangement and number of the denticles and the curved or arched nature of the jaw.

Staurocephalites ejectus sp. nov.

Maxilla II. Plate 1, Fig. 15-17

Because of the broken margins of the two attached jaws the true shape is not discernible. Its form in general is wide and elongate. A jaw that is probably nearly complete in length measures 1.32 mm. Along the inner margin of the larger jaw a series of about fourteen conical, sharp-pointed, backward-directed denticles extends the full length of the jaw. The denticles are oblique to the plane of the jaw. The area adjacent to the denticles is flat or slightly concave when observed from the under side. The outer margins are irregular and broken. A large fossa occupies the upper side of the jaw. Attached to the anterior end is a secondary jaw. When observed from the under side no line of articulation can be detected. The jaws seem to be cohered. Along the curved outer margin of the secondary jaw a series of about twelve conical, sharp-pointed, backward-directed denticles extends the full length of the jaw.

A number of species of *Staurocephalites* are similar to *Staurocephalites ejectus* especially in the presence of a secondary jaw. *Staurocephalites appositus* Eller (1945), *Staurocephalites aequilateralis* Eller (1955), *Staurocephalites triplus* Eller (1945) and *Staurocephalites divinctus* Eller (1946) consist of two jaws in which it is difficult to find a suture or line of articulation. *Staurocephalites ejectus* differs from these forms mainly in that the second jaw is at the anterior instead of at the side and that it is much larger.

Genus MARLENEITES Eller, 1945

Marleneites elatus sp. nov.

Maxilla II. Plate 1, Fig. 11-12

In outline the jaw is irregularly elongate. The figured specimen measures 0.57 mm. in length and 0.12 mm. in width at the anterior and 0.2 mm. near

the posterior. On the convex under surface or inner margin a series of 11 or 12 sharp, conical, backward-directed denticles extends the full length of the slightly arched jaw. The first denticle is large and separated from the next denticle by a small space. The remaining denticles are closely spaced and uniform in size except at the posterior end where they become smaller. The anterior end of the jaw is rounded and slightly concave adjacent to the denticles and the high, thick, rounded margin. The outer margins are irregularly curved and are thickened. A wide area or flange is present on the left outer side at the posterior area of the jaw. A large fossa occupies the complete upper side of the jaw.

Marleneites elatus is similar to other forms of this genus. It differs mostly in the shape of the jaw, the width of the posterior end and the size of the first denticle.

Marleneites explicatus sp. nov.

Maxilla II. Plate 1, Fig. 13-14, 19

The jaw is elongate and large and the figured specimens measure from 1.22 mm. to slightly more than 1.32 mm. in length. On the lower surface or inner margin a series of 10 to 12 large, conical, pointed denticles extends the full length of the jaw. The first denticle is slightly larger than the second. Anteriorly the denticles are large and widely spread out but posteriorly they become small and close together. In some specimens the denticles are slightly oblique to the plane of the jaw. Adjacent to the denticles there is a slight convexity. The anterior of the jaw is broadly rounded while the posterior is narrow. A thickened margin is present at the anterior which would also be true of the outer margins if they were complete. A deep fossa occupies the upper side of the jaw.

Marleneites explicatus is similar to *Marleneites aureus* Eller (1945) except for the size and number of denticles, the width of the jaw and the depth of the fossa.

Genus *Ildraites* Eller, 1936

Ildraites eminulus sp. nov.

Maxilla II. Plate 1, Fig. 18

In outline the jaw is large and subtriangular. The figured specimen measures 1.35 mm. in length and 0.77 mm. in width. Along the curved inner margin a series of 11 large, conical denticles extends nearly to the posterior end. The first denticle or fang is large, thick and perpendicular to the inner margin. It is followed by two small, rounded teeth. The remaining denticles are large and projected a little outward and are backward directed. They decrease in size gradually to the posterior. The outer margin incurves slightly to a medium sized, sharp-pointed shank. A fairly deep crescent-shaped bight on the outer margin forms the curved posterior margin of the shank. About one-half of the outer side of the jaw is occupied by a narrow but deep fossa. The margins of the fossa are thickened and rounded.

In the outline *Ildraites eminulus* is similar to *Ildraites howelli* Eller (1941). They differ in the number and character of the denticles, the width of the jaw and the shape of the bight. Hinde (1882) described a species, *Arabellites anglicus* Hinde, that is similar in shape but differs in the number, size and shape of the denticles and the opening of the fossa.

Genus *Nereidavus* Grinnell, 1877*Nereidavus exploratus* sp. nov.

Maxilla I, II. Plate 1, Fig. 20-21

The jaw apparatus consists of a Maxilla I and II. They are probably not in an exact natural position. Maxilla I is large, elongate, and measures 1.90 mm. in length. Along the inner margin a series of 11 small, rounded denticles occupy about 0.65 mm. of the length. The denticles are backward directed and nearly uniform in size. A large, thick fang is at right angles with the nearly straight inner margin. The outer margin is incurved slightly but is generally parallel to the inner margin. Present at the posterior end is an irregularly shaped bight. Its margin curves to the inner margin of the jaw to form an acute posterior extremity. A large, deep fossa is present on the upper side of the jaw. The margins of the fossa are slightly thickened. The anterior margin of the fossa continues to the outer margin of the jaw to form a small shank. Both the upper and under surfaces of the jaw are irregular. Maxilla II is subtriangular in outline. It measures 1.42 mm. in length and 0.82 mm. in width. A series of 11 large, conical, backward-directed denticles extends nearly the full length of the slightly curved inner margin. The denticles are not uniform in size or arrangement. The first two denticles are small while the third is large and thick. This is followed by a smaller tooth. The succeeding denticles are large, conical and pointed except for the last two which are small and rounded. The anterior margin is slightly incurved and terminates in a narrow and pointed shank which also emphasizes the narrowness of the shank. The fossa is narrow and deep, and extends from the end of the shank to the posterior extremity. The margins of the fossa are thick and well rounded.

Nereidavus exploratus is similar to many species of *Nereidavus*. It is quite like *Nereidavus harbisonae* Eller (1941) but differs in the character and arrangement of the denticles and the shape of the fossa. Lange (1947) described a new genus, *Paulinites*, for articulated forms very similar to *Nereidavus exploratus*. There does not seem to be any valid reason for a new genus since Grinnell (1877) erected the genus *Nereidavus* which includes species of this type. The fact that additional parts to the jaw apparatus have been found in articulation does not invalidate a genus that was erected 70 years before. Many parts of fossil plants and animals have been described separately under various genera before a complete form has been found. The first described genus rates priority.

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EXPLANATION OF PLATE I

Figures magnified about 28 times.

Numbers in parenthesis indicate Carnegie Museum catalogue numbers of the respective type specimens.

- Fig. 1. *Eunicites effusus* sp. nov.
 Maxilla IV, right jaw (28705).
 Under side.
 Dundee, Michigan.
- Fig. 2. *Eunicites extentus* sp. nov.
 Maxilla IV, right jaw (28706).
 Upper side.
 Sibley Quarry, Trenton, Michigan.
- Fig. 3. *Eunicites extentus* sp. nov.
 Maxilla IV, left jaw (28707).
 Under side.
 Dundee, Michigan.
- Fig. 4. *Eunicites extentus* sp. nov.
 Maxilla IV, right jaw (28708).
 Upper side.
 Sibley Quarry, Trenton, Michigan.
- Fig. 5. *Eunicites euconus* sp. nov.
 Maxilla IV, right jaw (28709).
 Upper side.
 Dundee, Michigan.
- Fig. 6. *Eunicites* ? sp.
 Maxilla IV, left jaw (28710).
 Under side.
 Dundee, Michigan.
- Fig. 7-8. *Paleoenonites exsertus* sp. nov.
 Maxilla II, left jaw (28714).
 Upper and under sides.
 Dundee, Michigan.



- Fig. 9. *Paleoenonites editus* sp. nov.
Maxilla II, right jaw (28715).
Upper side.
Sibley Quarry, Trenton, Michigan.
- Fig. 10. *Staurocephalites eucharis* sp. nov.
Maxilla II, right jaw (28716).
Under side.
Sibley Quarry, Trenton, Michigan.
- Fig. 11-12. *Marleneites elatus* sp. nov.
Maxilla II, left jaw (28717).
Under and upper sides.
Sibley Quarry, Trenton, Michigan.
- Fig. 13-14. *Marleneites explicatus* sp. nov.
Maxilla II, right jaw (28719).
Lateral and upper sides.
Dundee, Michigan.
- Fig. 15. *Staurocephalites ejectus* sp. nov.
Maxilla II, right jaw (28721).
Under side.
Sibley Quarry, Trenton, Michigan.
- Fig. 16-17. *Staurocephalites ejectus* sp. nov.
Maxilla II, right jaw (28723).
Upper and under sides.
Dundee, Michigan.
- Fig. 18. *Ildraites eminulus* sp. nov.
Maxilla II, right jaw (28724).
Upper side.
Sibley Quarry, Trenton, Michigan.
- Fig. 19. *Marleneites explicatus* sp. nov.
Maxilla II, right jaw (28725).
Under side.
Dundee, Michigan.
- Fig. 20-21. *Nereidavus exploratus* sp. nov.
Maxilla I, left jaw (28727).
Upper and under sides.
Dundee, Michigan.